

Entergy Arkansas 425 West Capitol Avenue P.O. Box 551 Little Rock, AR 72203 Tel 501 377 4000

November 15, 2002

Ms. Sara Kyle, Chairman Tennessee Regulatory Authority 460 James Robertson Parkway Nashville, TN 37243-0505

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PA	D T.R.A.	
Chk#_	1180	
Amount	25.00	<b>200</b>
Rovd By	A 1	****
Date	11-18-02	
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Re:

Tennessee Regulatory Authority (TRA) Docket No. 02-013460 Entergy Arkansas, Inc. (EAI) Proposed Net Metering Tariff and Standard Interconnection Agreement

Dear Ms. Kyle:

Attached are the original and 13 copies of EAI's August 22, 2002 filing with the Arkansas Public Service Commission (APSC) in Docket No. 02-149-TF of its proposed Rate Schedule No. 3, Optional Residential/Commercial Net Metering Service (NM) tariff along with the Standard Interconnection Agreement for Net Metering Facilities in Policy Schedule No. 13, Section 13.16. Copies of changes to the Table of Contents in Part III Rate Schedules, Sheet No. TC-3 and to Policy Schedule No. 13, Sheet P13.2.2. were included in the filing. EAI made an errata filing on September 19, 2002 to make minor corrections to the proposed Policy Schedule.

On September 19, 2002, APSC General Staff witness Harold Keys, Jr. filed testimony recommending approval of EAI's proposed net metering tariff and interconnection agreement as filed on August 22 and as revised on September 19. The APSC issued Order No. 1 on September 20, 2002, approving EAI's net metering tariff and interconnection agreement and revised Table of Contents Sheet No. TC-3 and Policy Schedule No. 13 – Sheet No. P13.2.2.

The APSC also required utilities to inform customers about net metering service by means of a bill insert. A copy of the bill insert is provided with this letter for informational purposes only.

Copies of each of these filings are attached. A copy of the approved tariff, policy schedule, and revised Sheet No. TC-3 and Sheet No. P13.2.2 reflecting the APSC docket number, approving order number, and effective date are also included.

Ms. Sara Kyle Page 2 November 15, 2002

The purpose of this letter is to file this tariff, policy schedule, and revised TOC sheets with the Tennessee Regulatory Authority for its acknowledgement and approval. The required \$25.00 filing fee is attached.

On October 4, 2002, EAI filed its Net Metering Safety and Performance Standards as proposed Policy Schedule No. 14 with the APSC in APSC Docket No. 02-202-TF. The APSC issued Order No. 1 in this Docket on November 1, 2002, suspending the proceeding to allow more time to review the standards. As soon as APSC General Staff files its testimony and an APSC order is issued, that information will be forwarded to the TRA.

Should you have any questions concerning this filing, please call me at 501-377-5489.

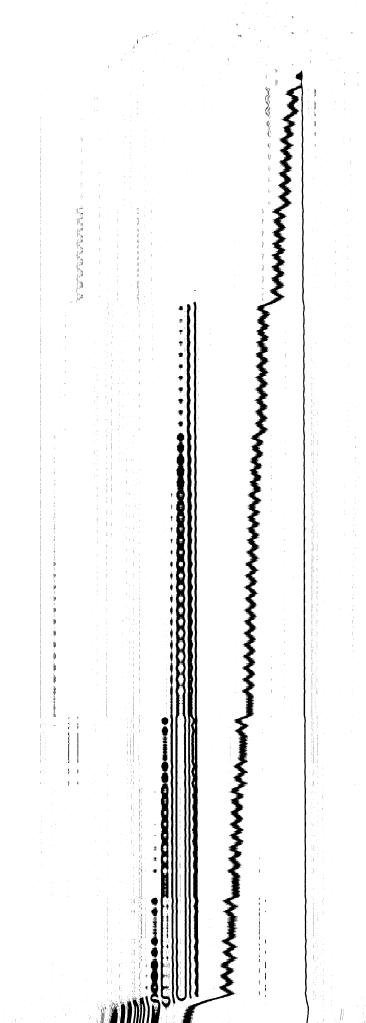
Sincerely,

Will Morgan

Manager, Arkansas Regulatory Affairs

WM/tj

**Attachments** 



Sheet No. TC-3 1<sup>st</sup> Revised Sheet No. TC-3 Replacing Original

Entergy Arkansas, Inc.
Name of Company

Kind of Service: Electric

Class of Service: All

Docket No.: 02-149-TF

Order No.: 1

Effective: 9/20/02

PSC File Mark Only

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Residential/Commercial	3. Optional Residential/Commercial Net Metering Service (NM)	3.1
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Commercial/Industrial	5. Nonresidential General Farm Service (GFS)	5.1
Commercial/Industrial	6. Large General Service (LGS)	6.1
Commercial/Industrial	7. Large General Service Time-Of-Use (GST)	7.1
Commercial/Industrial	8. Large Power Service (LPS)	8.1
Commercial/Industrial	9. Large Power Service Time-Of-Use (PST)	9.1
Lighting	10. Municipal Street Lighting Service (L1)	10.1
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THIS SPACE FOR PSC USE ONLY

Original

Sheet No.: 3.1

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Residential/Commercial

Docket No.: 02-149-TF

Order No.: 1

Effective: 9/20/02

Part III. Rate Schedule No.: 3

Title: Optional Residential/Commercial Net Metering Service (NM) PSC File Mark Only

#### 3.0. **NET METERING**

#### 3.1. APPLICABLE SERVICE AREA

In the Distribution Service area allocated by the Arkansas Public Service Commission ("APSC" or the "Commission") to Entergy Arkansas, Inc. ("EAI" or the "Company"), at any point on Company's existing facilities having adequate capacity and suitable voltage for delivery of service. This schedule may also apply outside the Company's allocated Distribution Service area to customers who have been released to EAI by other electric distribution utilities, when such release for service has been approved by the Commission pursuant to Rule 7.04.(b) of the Commission's Rules of Practice and Procedure. This schedule is also subject to the jurisdiction of the Tennessee Regulatory Authority where applicable.

#### 3.2. **AVAILABILITY**

To any residential or commercial customer who takes service under the following 3.2.1. standard rate schedules: General Purpose Residential Service (RS), Optional Residential Time-Of-Use (RT), Small General Service (SGS), Nonresidential General Farm Service (GFS), Large General Service (LGS), Large General Service Time-Of-Use (GST), Large Power Service (LPS) or Large Power Service Time-Of-Use (PST) who has installed a net metering facility and signed a Standard Interconnection Agreement for Net Metering Facilities with the Company. Such facilities must be located on the customer's premise and intended primarily to offset some or all of the customer's energy usage at that location.

The provisions of the customer's standard rate schedule are modified as specified herein.

3.2.2. Customers may not take service under this tariff and simultaneously take service under the provisions of any other alternative source generation or co-generation tariff.

#### 3.3. MONTHLY BILLING

- On a monthly basis, the net metering customer shall be billed charges applicable under the currently effective standard rate schedule and any appropriate rider schedules. Under net metering, only the kilowatthour (kWh) units of a customer's bill are affected.
- 3.3.2. If the electricity supplied by the Company exceeds the electricity generated by the net metering customer and fed back to the Company during the billing period, the net metering customer shall be billed for the net billable kWhs supplied by the Company in accordance with the rates and charges under the Company's standard rate schedule applicable to the customer.
- 3.3.3. If the electricity generated by the net metering customer and fed back to the Company during the billing period exceeds the electricity supplied by the Company, the customer shall not receive any compensation from the Company for such net metering excess delivered kWhs during the billing period.

1st Revised

Sheet No. P13.2.2

Replacing: Original

Sheet No. P13.2.2

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: All

Part IV. Policy Schedule No.: 13

Docket No.: 02-149-TF

Order No.: 1

Effective:

9/20/02

Title: **Contract Forms** 

PSC File Mark Only

Experimental Energy Reduction (EER) Enabling Agreement

13.15.

Standard Interconnection Agreement for Net Metering Facilities

13.16.

(AT)

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P13.16.1 Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Docket No.: 02-149-TF Order No.: 1 Part IV. Policy Schedule No.: 13 Effective: 9/20/02 Title: **Contract Forms** PSC File Mark Only 13.16. STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES i. STANDARD INFORMATION **Customer Information** Section 1. Name: Mailing Address:\_\_\_ City:\_\_\_ \_\_\_\_\_\_State:\_\_\_\_\_\_Zip Code:\_\_\_\_\_ Facility Location (if different from above): Daytime Phone: \_\_\_\_\_Evening Phone: Company Customer Account (from electric bill):\_\_\_\_\_ Section 2. Generation Facility Information System Type: Solar Wind Hydro Geothermal Biomass Fuel Cell Micro turbine Generator Rating (kW):\_\_\_\_\_\_ AC or DC (circle one) Describe Location of Accessible and Lockable Disconnect: Inverter Manufacturer:\_\_\_\_\_Inverter Model: Inverter Location:\_\_\_\_\_Inverter Power Rating:\_\_\_\_\_ Section 3. Installation Information Attach a detailed electrical diagram of the net metering facility.

#### THIS SPACE FOR PSC USE ONLY

Installed by: \_\_\_\_\_Qualifications/Credentials:

Daytime Phone:\_\_\_\_\_Installation Date:\_\_\_\_

\_\_\_\_\_\_State:\_\_\_\_\_\_Zip Code:\_\_\_\_\_

Mailing Address:\_\_\_\_

City:\_\_\_\_

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P13.16.2 Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Docket No.: 02-149-TF Order No.: 1 Part IV. Policy Schedule No.: 13 Effective: 9/20/02 Title: **Contract Forms** PSC File Mark Only Section 4. Certification 1. The system has been installed in compliance with the local Building/Electrical Code of \_\_\_\_\_ (City/County). Signed (Inspector): Date: (In lieu of signature of inspector, a copy of the final inspection certificate may be attached.) 2. The system has been installed to my satisfaction and I have been given system warranty information and an operation manual, and have been instructed in the operation of the system. Signed (Owner): \_\_\_ \_\_\_\_ Date: \_\_\_\_ Section 5. Company Verification and Approval 1. Facility Interconnection Approved: \_\_\_Date:\_\_\_\_ Metering Facility Verification by: Verification

Date:\_\_\_\_

ARKANSAS PUBLIC SERVICE COM	MISSION	
Original Sheet No. P13.1	6.3	
Replacing: Sheet No.:		
Entergy Arkansas, Inc.		
Name of Company		
Kind of Service: Electric Class of Service	e: Residential/Commercial	Docket No.: 02-149-TF
Part IV. Policy Schedule No.: 13		Order No.: 1 Effective: 9/20/02
Title: Contract Forms		PSC File Mark Only
II. INTERCONNECTION AGRE	EMENT TERMS AND CONDI	TIONS
This Interconnection Agreement for I	Net Metering Facilities ("Agre	eement") is made and
entered into this day of		
Arkansas, Inc. ("EAI" or the "Company		
(specify	whether corporation or oth	ner), each hereinafter
sometimes referred to individually	as "Party" or collectively a	s the "Parties". In
consideration of the mutual covenants	set forth herein, the Parties a	gree as follows:

Section 1. The Metering Facility

The Net Metering Facility meets the requirements of Arkansas Code Ann. § 23-18-603(5) and the Arkansas Public Service Commission's Net Metering Rules.

Section 2. Governing Provisions

The parties shall be subject to the provisions of Arkansas Code Ann. § 23-18-604 and the terms and conditions set forth in this Agreement, the Net Metering Rules, and the Company's applicable tariffs.

Section 3. Interruption or Reduction of Deliveries

The Company shall not be obligated to accept and may require Customer to interrupt or reduce deliveries when necessary in order to construct, install, repair, replace, removed, investigate, or inspect any of its equipment or part of its system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices. Whenever possible, the Company shall give the Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this Agreement, if at any time the Company reasonably determines that either the facility may endanger the Company's personnel or other persons or property, or the continued operation of the Customer's facility may endanger the integrity or safety of the Company's electric system, the Company shall have the right to disconnect and lock out the Customer's facility from the Company's electric system. The Customer's facility shall remain disconnected until such time as the Company is reasonably satisfied that the conditions referenced in this Section have been corrected.

Original

Sheet No. P13.16.4

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Residential/Commercial

Docket No.: 02-149-TF

Order No.: 1

Effective: 9/20/02

Part IV. Policy Schedule No.: 13

PSC File Mark Only

Title: **Contract Forms** 

#### Section 4. Interconnection

Customer shall deliver the as-available energy to the Company at the Company's meter.

Company shall furnish and install a standard kilowatt-hour meter. Customer shall provide and install a meter socket for the Company's meter and any related interconnection equipment per the Company's technical requirements, including safety and performance standards.

The customer shall submit a Standard Interconnection agreement to the Company at least thirty (30) days prior to the date the customer intends to interconnect the net metering facilities to the Company's facilities. Part I, Standard Information, Sections 1 through 4 of the Standard Interconnection Agreement must be completed for the notification to be valid. The customer shall have all equipment necessary to complete the interconnection prior to such notification. If mailed, the date of notification shall be the third day following the mailing of the Standard Interconnection Agreement. Company shall provide a copy of the Standard Interconnection Agreement to the customer upon request.

Following notification by the customer as specified in Rule 3.01.C, the Company shall review the plans of the facility and provide the results of its review to the customer within 30 calendar days. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

To prevent a net metering customer from back-feeding a de-energized line, the customer shall install a manual disconnect switch with lockout capability that is accessible to Company personnel at all hours. This requirement for a manual disconnect switch will be waived if the following three conditions are met: 1) The inverter equipment must be designed to shut down or disconnect and cannot be manually overridden by the customer upon loss of Company service; 2) The inverter must be warranted by the manufacturer to shut down or disconnect upon loss of Company service; and 3) The inverter must be properly installed and operated, and inspected and/or tested by Company personnel.

Customer, at his own expense, shall meet all safety and performance standards established by local and national electrical codes including the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), the National Electrical Safety Code (NESC), and Underwriters Laboratories (UL).

Customer, at his own expense, shall meet all safety and performance standards adopted by the Company and filed with and approved by the Commission pursuant to Rule 3.01.F that are necessary to assure safe and reliable operation of the net metering facility to the Company's system.

Original

Title:

Sheet No. P13,16,5

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Residential/Commercial

Order No.: 1

Docket No.: 02-149-TF

Effective:

9/20/02

Part IV. Policy Schedule No.: 13 **Contract Forms** 

PSC File Mark Only

Customer shall not commence parallel operation of the net metering facility until the net metering facility has been inspected and approved by the Company. Such approval shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Company's approval to operate the Customer's net metering facility in parallel with the Company's electrical system should not be construed as an endorsement, confirmation, warranty, guarantee, or representation concerning the safety, operating characteristics, durability, or reliability of the Customer's net metering facility.

Modifications or changes made to a net metering facility shall be evaluated by the Company prior to being made. The Customer shall provide detailed information describing the modifications or changes to the Company in writing prior to making the modification to the net metering facility. The Company shall review the proposed changes to the facility and provide the results of its evaluation to the Customer within thirty (30) calendar days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

#### Section 5. Maintenance and Permits

The customer shall obtain any governmental authorizations and permits required for the construction and operation of the net metering facility and interconnection facilities. The Customer shall maintain the net metering facility and interconnection facilities in a safe and reliable manner and in conformance with all applicable laws and regulations.

#### Section 6. **Access to Premises**

The Company may enter the Customer's premises to inspect the Customer's protective devices and read or test the meter. The Company may disconnect the interconnection facilities without notice if the Company reasonably believes a hazardous condition exists and such immediate action is necessary to protect persons, or the Company's facilities, or property of others from damage or interference caused by the Customer's facilities, or lack of properly operating protective devices.

ARKANSAS PUBLIC SERVICE COMMISSION	
Original Sheet No. P13.16.6	
Replacing: Sheet No.:	
Entergy Arkansas, Inc.	
Name of Company	
Kind of Service: Electric Class of Service: Residential/Commercial	Docket No.: 02-149-TF
Part IV. Policy Schedule No.: 13	Order No.: 1 Effective: 9/20/02
Title: Contract Forms	PSC File Mark Only
Each party shall indemnify the other party, its directors, officers, against all loss, damages expense and liability to third persons for persons or injury to property caused by the indemnifying party's construction ownership or operations of, or the making of replacement to, or by failure of, any of such party's works or facilities with this Agreement by reason of omission or negligence, whether a indemnifying party shall, on the other party's request, defend any covered by this indemnity. The indemnifying party shall pay a incurred by the other party in enforcing this indemnity. It is the intent that, where negligence is determined to be contributory, princing negligence will be followed and each party shall bear the proportion damage, expense and liability attributable to the party's negligence.  Nothing in this Agreement shall be construed to create any duty to, with reference to or any liability to any person not a party to this Agreement, agents or employees shall be liable for an costs, losses, causes of action, or any other liability of any nature of the engineering, design construction, ownership, maintenance or creplacements, additions or betterment to, the Customer's facilities any other person or entity.  Section 8. Notices	r injury to or death of sengineering design, cements, additions or es used in connection active or passive. The suit asserting a claim II costs that may be at of the parties hereto iples of comparative nate cost of any loss, any standard of care reement. Neither the ny claims, demands, or kind, arising out of poeration of or make
All written notices shall be directed as follows:	
COMPANY Attention: Mr. Mike Glancy ENTERGY ARKANSAS, INC. #9 Entergy Court Little Rock, Arkansas 72211	

CUSTOMER Attention:

Name:\_\_\_\_\_\_Address:\_\_\_\_\_\_\_City:\_\_\_\_\_\_

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P13,16,7 Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Docket No.: 02-149-TF Order No.: 1 Part IV. Policy Schedule No.: 13 Effective: 9/20/02 Title: **Contract Forms** PSC File Mark Only Customer notices to Company shall refer to the Customer's electric service account number set forth in Section 1 of this Agreement. Section 9. **Term of Agreement** The term of this Agreement shall be the same as the term of the otherwise applicable standard rate schedule. This Agreement shall remain in effect until modified or terminated in accordance with its terms or applicable regulations or laws. Section 10. Assignment This Agreement and all provisions hereof shall inure to and be binding upon the respective parties hereto, their personal representatives, heirs, successors, and assigns. The Customer shall not assign this Agreement or any part hereof without the prior written consent of the Company, and such unauthorized assignment may result in termination of this Agreement. IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives. Dated this \_day of\_\_ Customer: ENTERGY ARKANSAS, INC. By: Title: Title: Mailing Address: Mailing Address:

# EAI'S RATE SCHEDULE NO. 3, OPTIONAL RESIDENTIAL/COMMERCIAL NET METERING SERVICE (NM)

THE STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES IN POLICY SCHEDULE NO. 13, SECTION 13.16

TABLE OF CONTENTS IN PART III RATE SCHEDULES, SHEET NO. TC-3

POLICY SCHEDULE NO. 13, SHEET NO. P13.2.2

FILED AUGUST 22, 2002 WITH THE

**ARKANSAS PUBLIC SERVICE COMMISSION** 

IN APSC DOCKET NO. 02-149-TF

Aug 22 11 32 AM '02

Entergy Arkansas 425 West Capitol Avenue P.O. Box 551 Little Rock, AR 72203 Tel 501 377 4000

# FILED

August 22, 2002

Ms. Diana Wilson, Secretary Arkansas Public Service Commission P. O. Box 400 1000 Center Street Little Rock, AR 72203

Re:

In the Matter of Entergy Arkansas, Inc.'s Net Metering

Compliance Tariff and Standard Interconnection Agreement,

Docket No. 02- 149 -TF

Dear Ms. Wilson:

In compliance with Order No. 4 issued on July 26, 2002 in Arkansas Public Service Commission (APSC) Docket No. 02-046-R, attached are the original and 13 copies of Entergy Arkansas, Inc.'s Rate Schedule No. 3, Optional Residential/Commercial Net Metering Service (NM) and the Standard Interconnection Agreement for Net Metering Facilities in Policy Schedule No. 13, Section 13.16. Also attached are changes to the Table of Contents in Part III Rate Schedules, Sheet No. TC-3 and to Policy Schedule 13, Sheet P13.2.2.

The Company requests APSC approval of the compliance tariff and interconnection agreement.

Sincerely,

William R. Morgan

Manager, Arkansas Regulatory Affairs

Villan Tho

WM

Attachments

Original

Sheet No.: 3.1

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Residential/Commercial

Part III. Rate Schedule No.: 3

Title: Optional Residential/Commercial Net Metering Service (NM)

PSC File Mark Only

#### 3.0. NET METERING

#### 3.1. APPLICABLE SERVICE AREA

In the Distribution Service area allocated by the Arkansas Public Service Commission ("APSC" or the "Commission") to Entergy Arkansas, Inc. ("EAI" or the "Company"), at any point on Company's existing facilities having adequate capacity and suitable voltage for delivery of service. This schedule may also apply outside the Company's allocated Distribution Service area to customers who have been released to EAI by other electric distribution utilities, when such release for service has been approved by the Commission pursuant to Rule 7.04.(b) of the Commission's Rules of Practice and Procedure. This schedule is also subject to the jurisdiction of the Tennessee Regulatory Authority where applicable.

#### 3.2. AVAILABILITY

3.2.1. To any residential or commercial customer who takes service under the following standard rate schedules: General Purpose Residential Service (RS), Optional Residential Time-Of-Use (RT), Small General Service (SGS), Nonresidential General Farm Service (GFS), Large General Service (LGS), Large General Service Time-Of-Use (GST), Large Power Service (LPS) or Large Power Service Time-Of-Use (PST) who has installed a net metering facility and signed a Standard Interconnection Agreement for Net Metering Facilities with the Company. Such facilities must be located on the customer's premise and intended primarily to offset some or all of the customer's energy usage at that

The provisions of the customer's standard rate schedule are modified as specified herein.

**3.2.2.** Customers may not take service under this tariff and simultaneously take service under the provisions of any other alternative source generation or co-generation tariff.

#### 3.3. MONTHLY BILLING

- 3.3.1. On a monthly basis, the net metering customer shall be billed charges applicable under the currently effective standard rate schedule and any appropriate rider schedules. Under net metering, only the kilowatthour (kWh) units of a customer's bill are affected.
- 3.3.2. If the electricity supplied by the Company exceeds the electricity generated by the net metering customer and fed back to the Company during the billing period, the net metering customer shall be billed for the net billable kWhs supplied by the Company in accordance with the rates and charges under the Company's standard rate schedule applicable to the customer.
- 3.3.3. If the electricity generated by the net metering customer and fed back to the Company during the billing period exceeds the electricity supplied by the Company, the customer shall not receive any compensation from the Company for such net metering excess delivered kWhs during the billing period.

# ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P13.16.1 Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Commercial/Industrial Part IV. Policy Schedule No.: 13 Title: Contract Forms PSC File Mark Only 13.16. STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES <u>l.</u> STANDARD INFORMATION Section 1. **Customer Information** Name: Mailing Address: \_\_\_\_\_State:\_\_\_\_\_Zip Code:\_\_\_\_\_ Facility Location (if different from above):\_\_\_\_\_ Daytime Phone:\_\_\_\_\_Evening Phone:\_\_\_\_ Company Customer Account (from electric bill):\_\_\_\_\_ Section 2. Generation Facility Information System Type: Solar Wind Hydro Geothermal Biomass Fuel Cell Micro turbine Generator Rating (kW):\_\_\_\_\_\_ AC or DC (circle one) Describe Location of Accessible and Lockable Disconnect: Inverter Manufacturer:\_\_\_\_\_Inverter Model: Inverter Location:\_\_\_\_\_Inverter Power Rating:\_\_\_\_ Section 3. Installation Information Attach a detailed electrical diagram of the net metering facility. Installed by: \_\_\_\_\_Qualifications/Credentials: \_\_\_\_ Mailing Address: City:\_\_\_\_\_\_State:\_\_\_\_\_Zip Code:\_\_\_\_\_

Daytime Phone:\_\_\_\_\_Installation Date:\_\_\_\_\_

ARKANSAS PUBLIC SERVICE COMMISSION	
Original Sheet No. <u>P13.16.2</u>	
Replacing: Sheet No.:	
Entergy Arkansas, Inc.	
lame of Company	
ind of Service: Electric Class of Service: Commercial/Industrial	
The sound	
art IV. Policy Schedule No.: 13	
le: Contract Forms	SC File Mark Only
Section 4. Certification	
1. The system has been installed in compliance with the local Building/El	lectrical Code of
(City/County).	
Signed (Inspector):	
Date:	
(In lieu of signature of inspector, a copy of the final inspection certificat	
attached.)	
2. The system has been installed to my satisfaction and I have been give	
information and an operation manual, and have been instructed in the system.  Signed (Owner): Date:  Section 5. Company Verification and Approval  1. Facility Interconnection	
Approved: Date:	
Metering Facility Verification by:Verification	
Date:verification	
II. INTERCONNECTION AGREEMENT TERMS AND CONDITIO	NC
This Interconnection Agreement for Net Metering Facilities ("Agreement	
entered into this day of, 20, by and	ent) is made and
Arkansas, Inc. ("EAI" or the "Company") and, 20, by and	d between Entergy
(specify whether corporation or other),	each hereinafter
sometimes referred to individually as "Party" or collectively as the	he "Parties". In
consideration of the mutual covenants set forth herein, the Parties agree	e as follows:
Section 1. The Metering Facility	
Section 1. The Metering Facility  The Net Metering Facility meets the requirements of Arkansas Code An and the Arkansas Public Service Commission's Net Metering Rules.	nn. § 23-18-603(5)

Original

Sheet No. <u>P13.16.3</u>

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Commercial/Industrial

Part IV. Policy Schedule No.: 13

Title: Contract Forms

PSC File Mark Only

#### Section 2. Governing Provisions

The parties shall be subject to the provisions of Arkansas Code Ann. § 23-18-604 and the terms and conditions set forth in this Agreement, the Net Metering Rules, and the Company's applicable tariffs.

#### Section 3. Interruption or Reduction of Deliveries

The Company shall not be obligated to accept and may require Customer to interrupt or reduce deliveries when necessary in order to construct, install, repair, replace, removed, investigate, or inspect any of its equipment or part of its system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices. Whenever possible, the Company shall give the Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this Agreement, if at any time the Company reasonably determines that either the facility may endanger the Company's personnel or other persons or property, or the continued operation of the Customer's facility may endanger the integrity or safety of the Company's electric system, the Company shall have the right to disconnect and lock out the Customer's facility from the Company's electric system. The Customer's facility shall remain disconnected until such time as the Company is reasonably satisfied that the conditions referenced in this Section have been corrected.

#### Section 4. Interconnection

Customer shall deliver the as-available energy to the Company at the Company's meter.

Company shall furnish and install a standard kilowatt-hour meter. Customer shall provide and install a meter socket for the Company's meter and any related interconnection equipment per the Company's technical requirements, including safety and performance standards.

The customer shall submit a Standard Interconnection agreement to the Company at least thirty (30) days prior to the date the customer intends to interconnect the net metering facilities to the Company's facilities. Part I, Standard Information, Sections 1 through 4 of the Standard Interconnection Agreement must be completed for the notification to be valid. The customer shall have all equipment necessary to complete the interconnection prior to such notification. If mailed, the date of notification shall be the third day following the mailing of the Standard Interconnection Agreement. The Company shall provide a copy of the Standard Interconnection Agreement to the customer upon request.

Original

Sheet No. <u>P13.16.4</u>

Replacing:

Sheet No.:

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Commercial/Industrial

Part IV. Policy Schedule No.: 13

Title: Contract Forms

PSC File Mark Only

Following notification by the customer as specified in Rule 3.01.C, the Company shall review the plans of the facility and provide the results of its review to the customer within 30 calendar days. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

To prevent a net metering customer from back-feeding a de-energized line, the customer shall install a manual disconnect switch with lockout capability that is accessible to Company personnel at all hours. This requirement for a manual disconnect switch will be waived if the following three conditions are met: 1) The inverter equipment must be designed to shut down or disconnect and cannot be manually overridden by the customer upon loss of Company service; 2) The inverter must be warranted by the manufacturer to shut down or disconnect upon loss of Company service; and 3) The inverter must be properly installed and operated, and inspected and/or tested by Company personnel.

Customer, at his own expense, shall meet all safety and performance standards established by local and national electrical codes including the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), the National Electrical Safety Code (NESC), and Underwriters Laboratories (UL).

Customer, at his own expense, shall meet all safety and performance standards adopted by the Company and filed with and approved by the Commission pursuant to Rule 3.01.F that are necessary to assure safe and reliable operation of the net metering facility to the Company's system.

Customer shall not commence parallel operation of the net metering facility until the net metering facility has been inspected and approved by the Company. Such approval shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Company's approval to operate the Customer's net metering facility in parallel with the Company's electrical system should not be construed as an endorsement, confirmation, warranty, guarantee, or representation concerning the safety, operating characteristics, durability, or reliability of the Customer's net metering facility.

Modifications or changes made to a net metering facility shall be evaluated by the Company prior to being made. The Customer shall provide detailed information describing the modifications or changes to the Company in writing prior to making the modification to the net metering facility. The Company shall review the proposed changes to the facility and provide the results of its evaluation to the Customer within thirty (30) calendar days of receipt of the Customer's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

Original

Sheet No. P13.16.5

Replacing:

Sheet No :

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

Class of Service: Commercial/Industrial

Part IV. Policy Schedule No.: 13

Title: Contract Forms

PSC File Mark Only

#### Section 5. Maintenance and Permits

The customer shall obtain any governmental authorizations and permits required for the construction and operation of the net metering facility and interconnection facilities. The Customer shall maintain the net metering facility and interconnection facilities in a safe and reliable manner and in conformance with all applicable laws and regulations.

#### Section 6. Access to Premises

The Company may enter the Customer's premises to inspect the Customer's protective devices and read or test the meter. The Company may disconnect the interconnection facilities without notice if the Company reasonably believes a hazardous condition exists and such immediate action is necessary to protect persons, or the Company's facilities, or property of others from damage or interference caused by the Customer's facilities, or lack of properly operating protective devices.

#### Section 7. Indemnity and Liability

Each party shall indemnify the other party, its directors, officers, agents, and employees against all loss, damages expense and liability to third persons for injury to or death of persons or injury to property caused by the indemnifying party's engineering design, construction ownership or operations of, or the making of replacements, additions or betterment to, or by failure of, any of such party's works or facilities used in connection with this Agreement by reason of omission or negligence, whether active or passive. The indemnifying party shall, on the other party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity. It is the intent of the parties hereto that, where negligence is determined to be contributory, principles of comparative negligence will be followed and each party shall bear the proportionate cost of any loss, damage, expense and liability attributable to the party's negligence.

Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to or any liability to any person not a party to this Agreement. Neither the Company, its officers, agents or employees shall be liable for any claims, demands, costs, losses, causes of action, or any other liability of any nature or kind, arising out of the engineering, design construction, ownership, maintenance or operation of, or make replacements, additions or betterment to, the Customer's facilities by the Customer or any other person or entity.

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. <u>P13.16.6</u> Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Commercial/Industrial Part IV. Policy Schedule No.: 13 Title: **Contract Forms** PSC File Mark Only Section 8. **Notices** All written notices shall be directed as follows: Attention: [Company Agent or Representative] [Company Name and Address] Attention: [Customer] Name: Address: \_\_\_\_ City:\_\_ Customer notices to Company shall refer to the Customer's electric service account number set forth in Section 1 of this Agreement. **Term of Agreement** The term of this Agreement shall be the same as the term of the otherwise applicable standard rate schedule. This Agreement shall remain in effect until modified or terminated in accordance with its terms or applicable regulations or laws. Section 10. Assignment This Agreement and all provisions hereof shall inure to and be binding upon the respective parties hereto, their personal representatives, heirs, successors, and assigns. The Customer shall not assign this Agreement or any part hereof without the prior written consent of the Company, and such unauthorized assignment may result in termination of this Agreement. IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives. Dated this \_\_\_\_day of Customer: By: By: Title: Title: Mailing Address: Mailing Address:

Kind of Service: Electric

1st Revised Sheet No. TC-3

Replacing Original Sheet No. TC-3

Entergy Arkansas, Inc.

Name of Company

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PSC File Mark Only

(AT)

#### Part III. Rate Schedules

Class of Service: All

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Rsidential/Commercial	3. Optional Residential/Commercial Net Metering Service (NM)	3.1
Commercial/Industrial	4. Small General Service (SGS)	4.1
Commercial/Industrial	5. Nonresidential General Farm Service (GFS)	5.1
Commercial/Industrial	6. Large General Service (LGS)	6.1
Commercial/Industrial	7. Large General Service Time-Of-Use (GST)	7.1
Commercial/Industrial	8. Large Power Service (LPS)	8.1
Commercial/Industrial	9. Large Power Service Time-Of-Use (PST)	9.1
Lighting	10. Municipal Street Lighting Service (L1)	10.1
Lighting	11. Traffic Signal Service (L2)	11.1
All	12. All Night Outdoor Lighting Service (L4)	12.1
Governmental Agencies	13. Municipal Pumping Service (MP)	13.1
Industrial	14. Agricultural Water Pumping Service (AP)	14.1
Industrial	15. Cotton Ginning Service (CGS)	15.1
Commercial	16. Community Antenna TV Amplifier Service (CTV)	16.1
All	17. Table of Riders Applicable to Rate Schedules	17.1
Commercial/Industrial	18. Voltage Adjustment Rider (M1)	18.1
All	19. Summary Billing Service Rider (SB)	19.1
All	20. Standby Service Rider (SS)	20.1

1st Revised

Sheet No. <u>P13.2.2</u>

Replacing: Original

Sheet No. <u>P13.2.2</u>

Entergy Arkansas, Inc. Name of Company

Kind of Service: Electric

Class of Service: All

Part IV. Policy Schedule No.: 13

Title: Contract Forms

PSC File Mark Only

Experimental Energy Reduction (EER) Enabling Agreement

13.15.

Standard Interconnection Agreement for Net Metering Facilities

13.16.

(AT)

EAI'S ERRATA FILING ON SEPTEMBER 19, 2002

POLICY SCHEDULE NO. 13, SECTION 13.16, SHEETS 13.16.1, 13.16.2, 13.16.3, 13.16.6, 13.16.7

TABLE OF CONTENTS IN PART III RATE SCHEDULES, SHEET NO. TC-3

FILED WITH THE

ARKANSAS PUBLIC SERVICE COMMISSION
IN APSC DOCKET NO. 02-149-TF

SEP 19 8 24 AM '02

Entergy Arkansas 425 West Capitol Avenue P.O. Box 551 Little Rock, AR 72203 Tel 501 377 4000

# FILED

September 19, 2002

Ms. Diana Wilson, Secretary Arkansas Public Service Commission P. O. Box 400 1000 Center Street Little Rock, AR 72203

Re:

APSC Docket No. 02-149-TF

In the Matter of Entergy Arkansas, Inc.'s (EAI) Net Metering Compliance Tariff and Standard Interconnection Agreement

Dear Ms. Wilson:

In response to the APSC Staff's request, attached are the original and 13 copies of EAI's errata filing of proposed Policy Schedule No. 13 and the Table of Contents in Part III Rate Schedules which it filed August 22, 2002.

#### These revisions are listed below:

_		
_	Page	Revision
	Policy Sheet 13.16 ,	In the header, Class of Service was corrected from Commercial/Industrial to Residential/Commercial.
	olicy Sheet 13.16.2	Inserted page break before Section II Interconnection Agreement Terms and Conditions.
	olicy Sheet 13.16.3	Section II Interconnection Agreement Terms and Conditions begins on this page increasing the contract from 6 to 7 pages.
	olicy Sheet 13.16.6	Section 8, Notices, was revised to include the name of the Company's representative and his address with the Customer reference also reformatted.
	plicy Sheet 13.16.7	Section 10, Assignment, was revised to include "ENTERGY ARKANSAS, INC." under Company reference.
TC	C-3	On Table of Contents, Part III. Rate Schedules, the spelling of residential was corrected in the Class of Service column for Rate Schedule No. 3 Optional Residential/Commercial Net Metering Service (NM).

There were no revisions to Rate Schedule No. 3, Sheet No. 3.1.

Sincerely,

William R. Morgan

Manager, Arkansas Regulatory Affairs

WM

Attachments

## ARKANSAS PUBLIC SERVICE COMMISSION <u>Original</u> Sheet No. <u>P13.16.1</u> Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Part IV. Policy Schedule No.: 13 Title: **Contract Forms** PSC File Mark Only 13.16. STANDARD INTERCONNECTION AGREEMENT FOR NET METERING FACILITIES STANDARD INFORMATION Section 1. **Customer Information** Name: Mailing Address: \_\_\_\_\_State:\_\_\_\_\_Zip Code:\_\_\_\_\_ City: Facility Location (if different from above):\_\_\_\_\_ Daytime Phone: \_\_\_\_\_Evening Phone: \_\_\_\_ Company Customer Account (from electric bill):\_\_\_\_\_ Section 2. Generation Facility Information System Type: Solar Wind Hydro Geothermal Biomass Fuel Cell Micro turbine Generator Rating (kW):\_\_\_\_\_ AC or DC (circle one) Describe Location of Accessible and Lockable Disconnect:\_\_\_\_\_ Inverter Manufacturer:\_\_\_\_\_Inverter Model:\_\_\_\_\_ Inverter Location:\_\_\_\_\_Inverter Power Rating:\_\_\_\_\_ Section 3. **Installation Information** Attach a detailed electrical diagram of the net metering facility. \_\_\_\_Qualifications/Credentials:\_\_\_\_\_ Installed by:\_\_\_ Mailing Address:\_\_\_\_ \_\_\_\_\_State:\_\_\_\_\_Zip Code:\_\_\_\_\_ City:

Daytime Phone:\_\_\_\_\_Installation Date:\_\_\_\_

#### ARKANSAS PUBLIC SERVICE COMMISSION **Original** Sheet No. <u>P13.16.2</u> Replacing: Sheet No .: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Part IV. Policy Schedule No.: 13 Title: **Contract Forms** PSC File Mark Only Section 4. Certification · 1. The system has been installed in compliance with the local Building/Electrical Code of \_\_\_\_\_ (City/County). Signed (Inspector): Date: (In lieu of signature of inspector, a copy of the final inspection certificate may be attached.) 2. The system has been installed to my satisfaction and I have been given system warranty information and an operation manual, and have been instructed in the operation of the system. Signed (Owner): \_\_\_\_\_\_ Date: \_\_\_\_\_ Section 5. Company Verification and Approval 1. Facility Interconnection Approved: Date:\_\_\_\_ Metering Facility Verification by: Verification Date:

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P13.16.3 Replacing: Sheet No.: Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Part IV. Policy Schedule No.: 13 Title: **Contract Forms** PSC File Mark Only INTERCONNECTION AGREEMENT TERMS AND CONDITIONS 11. · This Interconnection Agreement for Net Metering Facilities ("Agreement") is made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_, by and between Entergy Arkansas, Inc. ("EAI" or the "Company") and \_\_\_\_("Customer"), a (specify whether corporation or other), each hereinafter sometimes referred to individually as "Party" or collectively as the "Parties". consideration of the mutual covenants set forth herein, the Parties agree as follows: Section 1. The Metering Facility The Net Metering Facility meets the requirements of Arkansas Code Ann. § 23-18-603(5) and the Arkansas Public Service Commission's Net Metering Rules. Governing Provisions The parties shall be subject to the provisions of Arkansas Code Ann. § 23-18-604 and the terms and conditions set forth in this Agreement, the Net Metering Rules, and the Company's applicable tariffs. Section 3. Interruption or Reduction of Deliveries The Company shall not be obligated to accept and may require Customer to interrupt or reduce deliveries when necessary in order to construct, install, repair, replace, removed, investigate, or inspect any of its equipment or part of its system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices. Whenever possible, the Company shall give the Customer reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this Agreement, if at any time the Company reasonably determines that either the facility may endanger the Company's personnel or other persons or property, or the continued operation of the Customer's facility may endanger the integrity or safety of the Company's electric system, the Company shall have the right to disconnect and lock out the Customer's facility from the Company's electric system. The Customer's facility shall remain disconnected until such time as the

Company is reasonably satisfied that the conditions referenced in this Section have been

corrected.

Original	Sheet No. <u>P13.16.6</u>
Replacing:	Sheet No.:
Entergy Arkansas, Inc. Name of Company	
Kind of Service: <u>Electric</u>	Class of Service: Residential/Commercial

Part IV. Policy Schedule No.: 13

Title: Contract Forms

PSC File Mark Only

#### Section 7. Indemnity and Liability

Each party shall indemnify the other party, its directors, officers, agents, and employees against all loss, damages expense and liability to third persons for injury to or death of persons or injury to property caused by the indemnifying party's engineering design, construction ownership or operations of, or the making of replacements, additions or betterment to, or by failure of, any of such party's works or facilities used in connection with this Agreement by reason of omission or negligence, whether active or passive. The indemnifying party shall, on the other party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity. It is the intent of the parties hereto that, where negligence is determined to be contributory, principles of comparative negligence will be followed and each party shall bear the proportionate cost of any loss, damage, expense and liability attributable to the party's negligence.

Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to or any liability to any person not a party to this Agreement. Neither the Company, its officers, agents or employees shall be liable for any claims, demands, costs, losses, causes of action, or any other liability of any nature or kind, arising out of the engineering, design construction, ownership, maintenance or operation of, or make replacements, additions or betterment to, the Customer's facilities by the Customer or any other person or entity.

#### Section 8. Notices

All written notices shall be directed as follows:

#### **COMPANY**

Attention:
Mr. Mike Glancy
ENTERGY ARKANSAS, INC.
#9 Entergy Court
Little Rock, Arkansas 72211

CUSTOMER Attention:		
Name:		
Address:		
City:		

ARK	ANSAS PUBLIC	SERVICE COMM	ISSION	
Origin	<u>al</u>	Sheet No. <u>P13.16.7</u>		
Repla	cing:	Sheet No.:		
Enterg	gy Arkansas, Inc.			
	of Company			
Kind o	of Service: <u>Electric</u>	Class of Service:	Residential/Commercial	
Part I\	V. Policy Schedule	No.: 13		
Title:	Contract Forms			PSC File Mark Only
		s to Company shall re n Section 1 of this Agre	fer to the Customer's ele	ectric service accoun
	The term of this a standard rate so	hedule. This Agreer	e same as the term of the ment shall remain in eff r applicable regulations or	ect until modified o
	This Agreement respective parties The Customer sha	hereto, their personal all not assign this Agree	reof shall inure to and representatives, heirs, sucement or any part hereof withorized assignment may re-	cessors, and assigns without the prior writter
	IN WITNESS WH their duly authorize	EREOF, the parties had representatives.	ave caused this Agreeme	ent to be executed by
/	Dated this	day of	, 20	
	Customer:		Company:	
			ENTERGY ARKAN	ISAS, INC.
	By:		By:	
	Title:		Title:	
	Mailing Address:		Mailing Address:	

 1st Revised
 Sheet No.
 TC-3

 Replacing Original
 Sheet No.
 TC-3

 Entergy Arkansas, Inc.

 Name of Company

Kind of Service: Electric

Class of Service: All

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PSC File Mark Only

**(**AT)

#### Part III. Rate Schedules

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Residential	2. Optional Residential Time-Of-Use (RT)	2.1
Residential/Commercial	3. Optional Residential/Commercial Net Metering Service (NM)	3.1
Commercial/Industrial	4. Small General Service (SGS)	4.1
Commercial/Industrial	5. Nonresidential General Farm Service (GFS)	5.1
Commercial/Industrial	6. Large General Service (LGS)	6.1
Commercial/Industrial	7. Large General Service Time-Of-Use (GST)	7.1
Commercial/Industrial	8. Large Power Service (LPS)	8.1
Commercial/Industrial	9. Large Power Service Time-Of-Use (PST)	9.1
Lighting	10. Municipal Street Lighting Service (L1)	10.1
Lighting	11. Traffic Signal Service (L2)	11.1
All	12. All Night Outdoor Lighting Service (L4)	12.1
Governmental Agencies	13. Municipal Pumping Service (MP)	13.1
Industrial	14. Agricultural Water Pumping Service (AP)	14.1
Industrial	15. Cotton Ginning Service (CGS)	15.1
Commercial	16. Community Antenna TV Amplifier Service (CTV)	16.1
All	17. Table of Riders Applicable to Rate Schedules	17.1
Commercial/Industrial	18. Voltage Adjustment Rider (M1)	18.1
All	19. Summary Billing Service Rider (SB)	19.1

THIS SPACE FOR PSC USE ONLY

# ARKANSAS PUBLIC SERVICE COMMISSION GENERAL STAFF TESTIMONY

OF

HAROLD L. KEYS, JR.

FILED SEPTEMBER 19, 2002

IN APSC DOCKET NO. 02-149-TF

ARK PEDELO SCRIA. SECOLIARO SOMM:

# SEP 19 3 02 PH '02

# BEFORE THE ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE REQUEST FOR	)				
APPROVAL OF NET METERING TARIFFS	j				
AND STANDARD INTERCONNECTION	)				
AGREEMENT FOR NET METERING FACILITIES	j	]	DOCKE	T NO.	02-149-TF
FILED BY ENTERGY ARKANSAS, INC.	<u> </u>				
CONSISTENT WITH RULE 4.01 OF NET	j				
METERING RULES (NMR)	)				

PREPARED TESTIMONY

OF

HAROLD L. KEYS, JR. ELECTRIC UTILITY RATE CASE ENGINEER

ON BEHALF OF THE STAFF OF THE ARKANSAS PUBLIC SERVICE COMMISSION

September 19, 2002

ENTERGY ARKANSAS, INC.
DOCKET NO. 02-149-TF
PREPARED TESTIMONY OF HAROLD L. KEYS, JR. -1-

- 1 Q. Will you please state your name and business address?
- A. My name is Harold L. Keys, Jr. My business address is P.O. Box 400, Little Rock, Arkansas 72203-0400.
- 4 Q. What is your present position with the Arkansas Public Service Commission Staff?
- 5 A. I am currently employed by the Arkansas Public Service Commission as a Rate Case
  6 Engineer in the Electric Utilities Section.
- 7 Q. Please state your qualifications and background?
- I hold a Bachelor of Science degree in Electrical Engineering from Mississippi State 8 A. University. From 1978 until 1989, I was employed by Mississippi Power Company in 9 various positions that dealt, directly or through other employees, with the utility's customers. 10 Some of these positions required rate analyses be performed on behalf of the customers to 11 12 determine the appropriate billing rate (tariff) for them to take electric service. During 1989-1991, I was a principal in a marketing consulting company. From 1991 until 1993, I worked 13 as a Senior Consultant and Project Manager for XENERGY, a utility consulting company 14 that performed profitability analyses and appropriateness studies of DSM technologies and 15 programs applicable to residential, commercial and industrial end-uses. In 1993, I was 16 employed at Entergy Arkansas as a Senior Analyst, later changed to Senior Lead Engineer, to 17 perform technology analyses and develop DSM programs. My employment continued with 18 Entergy Arkansas until 1999. My work from 1993 – 1999 was in many different areas of the 19 20 company, including integrated resource planning, demand side management, marketing, and rates and economic analysis. From 1999 - 2002 I was a principal in my own consulting 21

## ENTERGY ARKANSAS, INC. DOCKET NO. 02-149-TF PREPARED TESTIMONY OF HAROLD L. KEYS, JR. -2-

- company, primarily working with utilities to determine ways they could use the internet to conduct business practices such as purchasing. I began my employment with the Arkansas Public Service Commission (Commission) in February of 2002. I have previously filed testimony before this Commission.
- 5 Q. What is the purpose of your testimony in this docket?
- I will address and make recommendations regarding a net metering tariff and interconnection agreement filed by Entergy Arkansas, Inc. ("Entergy") on August 22, 2002, and an amended interconnection agreement filed on September 19, 2002, in accordance with Order No. 4 in Docket No. 02-046-R.
- 10 Q. Please explain.
- 11 A. On July 26, 2002, Commission Order No. 4 in Docket No. 02-046-R approved Net Metering

  Rules (NMRs) filed by Staff, and ordered all jurisdictional electric utilities to file a Standard

  Interconnection Agreement for Net Metering Facilities and a Net Metering Tariff that

  conform to the approved NMRs. This filing satisfies that order.
- Q. Has Staff reviewed the tariff and interconnection agreement filing?
- Yes. I have reviewed the tariff and interconnection agreement filed in this docket and find that they satisfy the requirements of the order.
- 18 Q. What is your recommendation?
- A. Based on my analysis of the proposed tariff and interconnection agreement, I recommend that policy schedule sheets P13.16.1 through P13.16.7 and tariff sheet TC-3, filed on September 19, 2002, be approved as filed. I recommend tariff sheet 3.1 and policy schedule sheet

ENTERGY ARKANSAS, INC.
DOCKET NO. 02-149-TF
PREPARED TESTIMONY OF HAROLD L. KEYS, JR. -3-

- P13.2.2, filed on August 22, 2002, be approved as filed. I recommend tariff sheet TC-3, and
- policy schedule sheets P13.16.1 through P13.16.6, filed August 22, 2002, be disapproved.
- 3 Q. Does this conclude your testimony?
- 4 A. Yes.

#### **CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing has been served on all parties of record by forwarding the same by first class mail, postage prepaid, this 19 day of September, 2002.

Valerie Boyce

## ARKANSAS PUBLIC SERVICE COMMISSION ORDER NO. 1 ISSUED SEPTEMBER 20, 2002 IN APSC DOCKET NO. 02-149-TF

#### **APPROVING**

EAI'S RATE SCHEDULE NO. 3, POLICY SCHEDULE NO. 13, SECTION 13.16, TABLE OF CONTENTS SHEET NO. TC-3, AND POLICY SCHEDULE NO. 13, SHEET NO. P13.2.2

SEP ZU 9 44 AH '02

#### ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE REQUEST FOR
APPROVAL OF NET METERING TARIFFS AND
STANDARD INTERCONNECTION AGREEMENT
FOR NET METERING FACILITIES FILED BY
ENTERGY ARKANSAS, INC. CONSISTENT
WITH RULE 4.01 OF NET METERING RULES (NMR))

#### ORDER

On August 22, 2002, Entergy Arkansas, Inc. ("Entergy") filed a net metering tariff and interconnection agreement. Entergy filed an amended interconnection agreement on September 19, 2002, in accordance with Order No. 4 in Docket No. 02-046-R.

On September 19, 2002, Mr. Harold L. Keys, Jr., Electric Utility Rate Case Engineer on behalf of the General Staff filed testimony stating that he recommends that policy schedule sheets P13.16.1 through P13.16.7 and tariff sheet TC-3, filed on September 19, 2002, be approved as filed. Mr. Keys also recommended that tariff sheet 3.1 and policy schedule sheet P13.2.2, filed on August 22, 2002, be approved as filed. He further recommended that tariff sheet TC-3 and policy schedule sheets P13.16.1 through P13.16.6, filed on August 22, 2002, be disapproved.

IT IS, THEREFORE, ORDERED that policy schedule sheets P13.16.1 through P13.16.7, tariff sheet TC-3, filed on September 19, 2002, and tariff sheet 3.1 and policy schedule sheet P13.2.2, filed on August 22, 2002, are approved as filed. Tariff Sheet TC-3 and policy schedule sheets P13.16.1 through P13.16.6, filed on August 22, 2002, are disapproved.

There being no further action to be taken in this matter at this time, the Secretary of the Commission is hereby authorized and directed to close this docket.

BY ORDER OF THE HEARING OFFICER PURSUANT TO DELEGATION.

This 20#fqay of September, 2002.

Susan E. D'Auteuil

Hearing Officer

Diana K. Wilson

Secretary of the Commission

hereby certify that the following order issued by the Arkansas Public Service Commission has been served on all parties of record this date by U.S. mail with postage prepaid, using the address of each party as indicated in the official docket file.

Diana K. Wilson

Secretary of the Commission Date 7-20-02

## EAI'S PROPOSED POLICY SCHEDULE NO. 14 SAFETY AND PERFORMANCE STANDARDS FOR NET METERING FACILITIES

TABLE OF CONTENTS IN PART III RATE SCHEDULES, SHEET NO. TC-5

TABLE OF CONTENTS IN PART IV POLICY SCHEDULES, SHEET NO. TC-6

FILED OCTOBER 4, 2002

WITH THE

ARKANSAS PUBLIC SERVICE COMMISSION
IN APSC DOCKET NO. 02-202-TF



#### ARK PUBLIC SERV. COMM. DIANA K. WILSON VECRETARY OF COMM.

Entergy Arkansas 425 West Capitol Avenue P.O. Box 551 Little Rock, AR 72203 Tel 501 377 4000

2002 OCT -4 A 9: 45

FILED

October 4, 2002

Ms. Diana Wilson, Secretary Arkansas Public Service Commission P. O. Box 400 1000 Center Street Little Rock, AR 72203

Re:

In the Matter of Entergy Arkansas, Inc.'s Proposed Policy Schedule No. 14 - Safety and Performance Standards for Net Metering Facilities, Docket No. 02-202 -TF

Dear Ms. Wilson:

Pursuant to Order No. 4, issued on July 26, 2002 in Arkansas Public Service Commission (APSC) Docket No. 02-046-R, which approved the revised Net Metering Rules, attached are the original and 13 copies of Entergy Arkansas, Inc.'s Policy Schedule No. 14, Safety and Performance Standards (Standards) for Net Metering Facilities. These proposed Standards meet the requirements of Net Metering Rule 3.01.F and Part II, Section 4 of EAI's Policy Schedule No. 13, Section 13.16, Standard Interconnection Agreement for Net Metering Facilities, approved by the Commission in APSC Docket No. 02-149-TF. Also attached are changes to the Table of Contents in Part III Rate Schedules, Sheet No. TC-5 and Part IV Policy Schedules, Sheet No. TC-6.

The Company requests APSC approval of the Safety and Performance Standards for Net Metering Facilities in proposed Policy Schedule No. 14.

Sincerely,

William R. Morgan

Manager, Arkansas Regulatory Affairs

tellian Hang

WM

Attachments

3<sup>rd</sup> Revised

Sheet No. TC-5

Replacing 2<sup>nd</sup> Revised

Sheet No. TC-5

Entergy Arkansas, Inc. Name of Company

Kind of Service: Electric

Class of Service: All

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PSC File Mark Only

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	53. RESERVED FOR FUTURE USE	53.1 (CT)
As Applicable	60. Extension Of Facilities	60.1
As Applicable	61. Tariff Governing The Installation Of Electric Underground Residential Distribution Systems And Underground Service Connections	61.1

3<sup>rd</sup> Revised Sheet No. <u>TC-6</u>

Replacing 2<sup>nd</sup> Revised Sheet No. <u>TC-6</u>

Entergy Arkansas, Inc.

Name of Company

Kind of Service: Electric

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#### PART IV. POLICY SCHEDULES

Class of Service: All

Class of Service	Policy Schedule No. and Title	Sheet Number
All As Applicable Residential Residential All Does Not Apply Lighting All All	<ol> <li>Pick A Date Plan (Extended Due Date)</li> <li>Budget Billing Plan (Levelized/Equal Pay)</li> <li>Extended Absence Payment Plan</li> <li>Provisions for Landlord and Tenants</li> <li>Standard Nominal Voltages</li> <li>Voltage Verification Plan</li> <li>All Night Outdoor Lighting Maintenance Policy</li> <li>RESERVED FOR FUTURE USE</li> <li>Service Regulations</li> <li>Contingency Emergency Power Conservation And</li> </ol>	P1.1 (CT) P2.1 P3.1 P4.1 P5.1 P6.1 P7.1 P8.1 P9.1
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#### 1.0 Introduction

#### 1.1 Purpose

The purpose of these safety and performance standards for renewable energy facilities is to describe the requirements and procedures for safe and effective interconnection and operation of renewable energy facilities under the Arkansas Public Service Commission (APSC or Commission) Net Metering Rules (the Rules).

A Net Metering Customer may operate a renewable energy facility at 60 Hertz (Hz), single- or threephase at voltages up to and including 34.5 kV in parallel with the Company's distribution delivery system pursuant to an interconnection agreement, provided that the equipment meets or exceeds the requirements of this standard.

This standard describes typical interconnection requirements. Some installations, however, may require more extensive interconnection facilities, and will be addressed on a case by case basis. This is most likely to be required when several Net Metering Customers desire to connect renewable energy facilities to the same transformer or on the same distribution feeder.

#### 1.2

The Rules provide that renewable energy facilities, sized according to the Rules, may be installed within the Company's service area on the Net Metering Customer's side of the meter. These facilities will be connected to the distribution delivery system when the distribution delivery system is operating under normal conditions. Some or all of the Net Metering Customer's load may be supplied with energy by the renewable energy facility. Under the Net Metering Rules, the Company's facilities will be available to handle the Net Metering Customer's entire load as needed.

The Rules provide for a maximum size of renewable energy facilities depending on the Net Metering Customer's rate class. Residential applications are limited to a maximum of 25 kW. Commercial applications are limited to a maximum of 100 kW.

The provisions contained in this document are the minimum requirements for safe and effective interconnection and operation of renewable energy facilities operating in parallel with the Company's distribution delivery system pursuant to the Rules.

#### 2.0 Definitions

Abnormal operating conditions - A situation in which the Company is operating the distribution delivery system in a manner inconsistent with normal configuration or under conditions that do not normally exist. Examples of abnormal operating conditions are: (1) times of high usage on the Company's system when Customers are requested to conserve energy or, (2) times when the Company must switch distribution feeder circuits out of use for repairs and switch other alternate feeders into use to deliver energy to Customers.

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Customer - Any entity interconnected to the Company's distribution delivery system who takes electric service under one of EAI's rate schedules.

<u>Displaced load</u> - The Net Metering Customer's entire electrical requirement or a portion of it that, except for the output of the Net Metering Customer's renewable energy facilities, would have been served by the Company.

<u>Distribution delivery system</u> - The Company's wires, equipment, and facilities having a voltage of 34.5 kV or below to which the Net Metering Customer's renewable energy facility is interconnected.

Interconnection - The physical connection of renewable energy facilities and the net metering facilities to the distribution delivery system in accordance with the requirements of this standard so that parallel operation can occur.

Interconnection agreement - The Standard Interconnection Agreement for Net Metering Facilities approved by the Commission in EAI Policy Schedule 13.16.

Interconnection facilities - All facilities installed solely to interconnect the Net Metering Customer's system with that of the Company to facilitate the exchange of power between the Net Metering Customer's renewable energy facilities and the Company's power system including, but not limited to, connection, transmission, distribution, engineering, transformation, switching, metering, and safety equipment. Interconnection facilities shall include any additions and/or modifications to the Company's system deemed by the Company to be necessary.

Network service - Two or more primary distribution feeder sources electrically connected on the secondary (or low voltage) side to form one power source for one or more Customers. This configuration is designed to maintain service to the Customers even after the loss of one of these primary distribution feeder sources.

Net Metering Customer - Any Customer with a renewable energy facility that takes service under EAI's net metering tariff.

Net Metering Facility - The hardware and software installed to measure the energy flow both into and out of the Net Metering Customer's facilities for the purpose of determining the usage for billing, if any.

Parallel operation - The operation of renewable energy facilities by a Net Metering Customer while the Net Metering Customer's facilities are physically and electrically interconnected to the Company's distribution delivery system.

Point of common coupling (PCC) - The point where transfer of any electric power between the Customer's facilities and the Company's distribution delivery system takes place, normally at the point of attachment.

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Pre-interconnection study - A study or studies that may be conducted by the Company in response to its receipt of a completed interconnection agreement. Pre-interconnection studies may include, but are not limited to:

- (a) Service study An on-site analysis used to determine the interconnection requirements and the system voltage for providing parallel service to a Net Metering Customer with a renewable energy facility. All net metering facilities will require this study.
- (b) Coordination study An engineering analysis that determines whether the presence of the renewable energy facility would interfere with the protective fusing and relaying on the distribution delivery system. It includes an analysis of the renewable energy facilities' contribution to power flow, available fault current, capacitor bank impact, and effects of voltage under normal and worst case situations. Typically, this would be required when more than one Net Metering Customer is or desires to be attached to the same distribution transformer or feeder circuit.
- (c) Distribution delivery system impact study An engineering study that models the distribution delivery system with the proposed renewable energy facilities in place. The modeling must determine whether the distribution delivery system will be able to support the proposed renewable energy facility without reliability problems or interruptions in service to other Customers. The study must also include a transient analysis to determine the potential for stability problems. If the model and transient studies indicate that power can flow back to the substation and consequently onto the transmission grid, then similar assessments will be required for the transmission system. This type of study would be required when several Net Metering Customers have renewable energy facilities interconnected on the same feeder circuit and the total output of all interconnected renewable energy facilities on that feeder is 50% or more of the feeder circuit's base load.
- (d) Secondary network study An engineering analysis to specifically determine whether a renewable energy facility can be safely added to a secondary network. Typically, this study would be required when a Net Metering Customer's renewable energy facility is proposed for interconnection to a secondary network.

Protective function - A system that uses hardware (including switching devices), relay protection schemes and software that prevents unsafe operating conditions from occurring before, during, and after the interconnection of the renewable energy facility with the distribution delivery system. This system will be designed to isolate the Net Metering Customer's renewable energy facility or to disconnect it from the distribution delivery system under abnormal operating conditions or outages.

Quality of service - An operating state of the distribution delivery system that provides usable power to a Customer. This state of usable power includes the parameters specified for power factor (Section 3.9.7), voltage surges and sags (Section 3.9.8), voltage flicker (Section 3.9.9), frequency (Section 3.9.10) and harmonics (Section 3.9.11).

Renewable energy facility - A system of hardware and software by which electric energy is generated using sun, wind, water, or biomass products as the source and as allowed to be interconnected to the Company's distribution system under the Rules.

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Stabilized - The distribution delivery system is considered stabilized when, following a disturbance, the system returns to the normal range of voltage and frequency for a duration of two minutes.

Standard of care - A term defining the level of awareness to maintain workplace and public safety in the design, installation and operation of facilities which generate power.

System protection facilities - The equipment required to protect the Company's system and its other Customers' facilities from unsafe operating conditions occurring at the Net Metering Customer's renewable energy facilities. The protection requirements shall be met at the PCC, although the devices and functions providing the protective functions can be located elsewhere.

Unsafe operating conditions - A situation that if left uncorrected would result in: (1) harm to any personnel or damage to any equipment, (2) unacceptable system stability or, (3) operation outside established parameters affecting the quality of service to other Customers connected to the distribution delivery system.

#### 3.0 Details

#### 3.1 Available Voltage Systems

The Company's distribution delivery systems available for parallel generation operations are grounded wye configuration of various voltage levels from 120/240 V to 34.5 kV. The voltage level available for connecting the renewable energy facility in parallel with the system depends on the desired location on the Company's distribution delivery system and the size of the Net Metering Customer's renewable energy facility.

#### Reasons for Disconnection from the Distribution Delivery System

The Company may disconnect the Net Metering Customer's renewable energy facility from the distribution delivery system under the following conditions:

Upon expiration or termination of the interconnection agreement; (1)

- Non-compliance of the Net Metering Customer's facility with any of the requirements in (2) this document:
- (3) System emergency -
  - The Company may temporarily disconnect a Net Metering Customer's facility without prior written notice in cases where continued interconnection will endanger persons or property:
  - During the forced outage of the distribution delivery system, the Company shall have the right to temporarily disconnect a Net Metering Customer's facility to make immediate repairs on the distribution delivery system;
- During routine maintenance, repairs, and modifications to the Company's distribution (4)system:
- (5)Lack of approved interconnection agreement -In order to interconnect the Net Metering Customer's renewable energy facility to the Company's distribution delivery system a Net Metering Customer must first submit to the Company an executed Standard Interconnection Agreement for Net Metering. The

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Company may refuse to connect or may disconnect the Net Metering Customer's facility if such agreement has not been received and approved.

When possible, the Company will provide the Net Metering Customer with reasonable notice of disconnection and will reconnect the Net Metering Customer as quickly as reasonably practical.

#### Pre-Interconnection Studies for Interconnection of Renewable Energy Facilities Under 3.3 **Net Metering Rules**

The Company shall conduct one or more pre-interconnection studies prior to interconnection of renewable energy facilities under the Rules.

Secondary network systems are designed such that they do not allow reverse current flow. This and other aspects of secondary network systems create technical difficulties that may make interconnection more costly to implement. The ability of the Company to connect a Net Metering Customer's renewable energy facility in parallel with the system may be limited if a Net Metering Customer who is served from a secondary network system requests interconnection. The Company may conduct pre-interconnection and network studies to determine to what extent the renewable energy facility may be safely added to the network or may be accommodated in some other fashion.

#### 3.4 System Changes

#### Company Changes to Distribution Delivery System

The distribution delivery system is a dynamic and changing system. If the Company changes the distribution voltage, the Net Metering Customer will be responsible for paying for all modifications to the Net Metering Customer's facilities required for reconnecting to the Company's reconfigured distribution delivery system. The Company will notify the Net Metering Customer of reconfiguration programs.

#### **Net Metering Customer Changes to Interconnection**

The Net Metering Customer shall notify the Company to obtain prior approval for any proposed modifications to the interconnecting scheme.

#### 3.5 Allowable Tie Points

Normally, only one tie point between the Net Metering Customer's facilities and the Company's distribution delivery system will be allowed.

#### 3.6 **Energy Flow during Emergencies**

Power flow from or to a Net Metering Customer's facilities during periods of system emergencies may be discontinued according to the APSC's rules, and the Company's Tariff, rates, riders or contract with the Net Metering Customer.

#### Types of Allowed Generators

Single- or three-phase alternating current generating units may be operated in parallel with the distribution delivery system when used as part of a renewable energy facility. They may be synchronous generators, induction generators, or inverter-controlled systems. The total connected

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capacity shall not exceed 25 kW for residential installations and 100 kW for commercial installations. Direct-current generation shall not be connected to the Company's alternating-current distribution delivery system.

#### 3.7.1 Limits on Three Phase Generators

If three-phase service is not available in the area or if Company facilities must be upgraded or otherwise modified in order to enable the Net Metering Customer to connect to these facilities, the Net Metering Customer must pay for the additional cost for such service or improvements as determined by the Company. The Company reserves the right to refuse three-phase service under certain circumstances per the Company's extension policy.

#### 3.7.2 **Limits on Single Phase Generators**

Where necessary, to avoid the potential for renewable energy facilities to affect the service to other Customers, the Company may limit the capacity and operating characteristics of singlephase generators in a manner consistent with its existing limitations for single-phase motors. A single-phase renewable energy facility shall be limited to a capacity of 25 kW or less.

#### 3.8 **Explicit Criteria for Parallel Operations**

A Net Metering Customer shall be permitted to interconnect and operate a renewable energy facility in parallel with the Company's distribution delivery systems provided that all of the following criteria are met throughout the life of the interconnection.

#### 3.8.1 Safety

In general, the Net Metering Customer's renewable energy facility will be held to the same standard of care as the Company is required to maintain. The safety of the general public and the personnel and equipment of the Company shall in no way be reduced or impaired as a result of the interconnection. Also, two installation criteria must be met:

The Net Metering Customer's renewable energy facility shall be equipped with (1) protective functions designed to prevent the renewable energy facility from being connected to a de-energized circuit owned by the Company.

The Net Metering Customer's renewable energy facility shall be equipped with (2) the necessary protective functions designed to prevent connection or parallel operation of the Net Metering Customer's facility with the distribution delivery system unless the distribution delivery system service voltage and frequency are of normal magnitude.

#### Impact of Interconnection 3.8.2

The quality, reliability and the availability of delivery service to the Company's other Customers shall not be diminished or impaired as a result of the interconnection.

#### 3.9 General Interconnection Requirements

The Net Metering Customer's renewable energy facility shall meet the technical requirements as prescribed in this section.

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3.9.1 Net Metering Customer's Equipment and Interconnection Standards

The Net Metering Customer's renewable energy facility, net metering facilities and interconnection installation must meet all applicable national, state, and local construction and safety codes.

The Net Metering Customer shall be responsible for the design, installation, operation and maintenance of all equipment and facilities installed or that will be installed on the Net Metering Customer's side of the PCC specified by the parties involved. Such design shall meet the latest standards of Institute of Electrical and Electronic Engineers, National Electric Manufacturers Association, American National Standards Institute, National Electric Code, other national codes and any local codes pertaining to the design and construction of electrical facilities. The facility shall be subject to the requirements of all authorities having jurisdiction and shall comply with all applicable codes and ordinances.

3.9.2 Rating of Net Metering Customer's Equipment

The equipment selected by the Net Metering Customer shall be rated for continuous parallel operation with the Company's system.

Renewable energy facilities that are designed to be used as stand-by or emergency power facilities shall not be interconnected to the Company's distribution delivery system for parallel operations under the Rules. Such an emergency power facility must not be interconnected to the Company's system. The customer's facilities shall be disconnected from the Company's system prior to the Customer's use of stand-by or emergency facilities.

3.9.3 Protection of Net Metering Customer's Equipment

The Net Metering Customer will be responsible for protecting its facilities in such a manner that distribution delivery system outages, short circuits or other disturbances, including zero sequence currents and ferroresonant over-voltages, do not damage the Net Metering Customer's facilities.

The Net Metering Customer's protective equipment shall be installed to prevent the renewable energy facility from causing unnecessary tripping of the distribution delivery system breakers that would affect the distribution delivery system's ability to provide reliable service to other Customers.

3.9.4 Required Drawings

Adequate drawings of the Net Metering Customer's proposed renewable energy facility, which will include a one line diagram and proposed relay systems, must be submitted to the Company for review during the planning stage. Additional drawings may be required on a case by case basis.

3.9.5 Changes to Company Facilities

The total cost of any additional equipment that must be installed by the Company on its distribution delivery system to allow parallel operation must be paid for by the Net Metering

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Customer, including the transformers and any facilities which must be added due to increased fault current or special operating conditions.

#### 3.9.6 Reactive Power Requirements

The Net Metering Customer's renewable energy facility shall normally be responsible for supplying the facility's own reactive power as required by the load to which it supplies power.

#### 3.9.7 Power Factor

The power factor of the renewable energy facility at the PCC shall be according to the appropriate rate schedule for this installation. The presence of the renewable energy facility shall not cause the power factor to be lower than it was prior to installation and operation of the renewable energy facility.

#### 3.9.8 Voltage Surges or Sags

The Net Metering Customer will operate its renewable energy facility in such a manner that the voltage levels on the distribution delivery system are in the same range (+5.0 % or -5% from nominal voltage) as if the facilities were not connected to the Company's system. The Net Metering Customer shall be responsible for any damages to the Net Metering Customer's facilities, and shall be liable for any damages to the Company's facilities or the facilities of other Customers due to any under voltage or over voltage contribution from the renewable energy facility.

#### 3.9.9 Voltage Flicker

The renewable energy facility shall not create objectionable flicker for the Company's other Customers. As a guide to identifying objectionable flicker the "Border Line of Irritation" curve is included in section 5.1. The creation of objectionable flicker shall result in disconnection by the Company until such time that all objectionable flicker problems are corrected.

#### 3.9.10 Frequency

The operating frequency of the Net Metering Customer's renewable energy facility shall not deviate more than +0.5 Hz or -0.7 Hz from a 60 Hz base. The Net Metering Customer's facility shall automatically disconnect from the distribution delivery system within 15 cycles if this frequency tolerance cannot be maintained. The Net Metering Customer may reconnect no sooner than three minutes after the distribution delivery system voltage and frequency have returned to normal range and the system has been stabilized.

#### 3.9.11 Harmonics

In accordance with IEEE 519 the total harmonic distortion (THD) voltage shall not exceed 5.0% of the fundamental 60 Hz frequency nor 3.0% of the fundamental frequency for any individual harmonic when measured at the PCC.

#### 3.10 Inspection Prior to Operations and Additional Requirements

The Company reserves the right to impose any herein described but unmet requirements and to make subsequent final inspection before the renewable energy facility operates to verify that all such unmet

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requirements have been satisfied. However, the Company has no actual or implied responsibility in this regard. The Net Metering Customer shall be responsible for making necessary changes, at the Net Metering Customer's expense, to the facility should such changes be required.

Inspection by the Company of the Net Metering Customer's equipment and interconnection facilities shall not constitute a determination by the Company of the continuing suitability of such equipment and interconnection. An inspection by the Company shall in no way constitute a warranty or representation by the Company against future negligence, misuse, faulty repairs, or subsequently developing defects, and the Company assumes no responsibility or liability therefor.

3.11 Responsibility for Net Metering Customer's Operations

The Company is not responsible for proper operations of the Net Metering Customer's renewable energy facility upon and after interconnection to the Company's distribution delivery system.

3.12 Responsibility for Net Metering Customer's Annual Maintenance

Annual maintenance of the Net Metering Customer's facility is the Net Metering Customer's sole responsibility. The Net Metering Customer shall maintain records of such maintenance activities, which the Company may review at reasonable times. Such maintenance records shall be made available for the Company's inspection upon request. The Company reserves the right to inspect the records, but has no responsibilities for maintenance either actual or implied.

#### 3.13 Protection/Interface Requirements

Protecting both the Net Metering Customer's facilities and the Company's system are of great importance. Proper protective systems shall be established in the design phase and confirmed prior to start-up of the Net Metering Customer's renewable energy facility. An interconnection between the Company and the Net Metering Customer will not be allowed prior to the proper coordination of protective devices. The Net Metering Customer shall be responsible for providing to the Company the necessary documentation certifying that maintenance and testing have been satisfactorily performed.

3.13.1 Changes to Company Fault Interruption Equipment

Renewable energy facilities that are installed on the Company's distribution delivery system will provide additional fault current to the distribution delivery system. Thus, it is possible that the added facilities will necessitate the modification of the existing fault interrupting devices on the distribution feeder. The Net Metering Customer will be responsible for paying the cost of these changes to the Company's system.

It is also possible that the added facilities will increase the available fault current on the distribution delivery system beyond the interrupting capability of the existing devices on the distribution delivery system. The Net Metering Customer may be required to limit the fault current contribution from the renewable energy facility. Should the Company also be required to make changes, the Net Metering Customer shall pay the cost of the required changes. The issues will be examined on a case-by-case basis.

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3.13.2 Tests of the Net Metering Customer's Equipment

The Company reserves the right, but has no responsibility either actual or implied, to observe the Net Metering Customer's tests and/or inspection of any of the Net Metering Customer's protective equipment that is essential to the interconnection, including relays, circuit breakers, protective devices and related equipment. Inspection may include simulated test tripping of the Net Metering Customer's interconnection breakers by the protective relays to verify all protective set points and relay/breaker trip timing prior to interconnection to the Company system.

Inspection by the Company of the Net Metering Customer's equipment and interconnection facilities shall not constitute a determination by the Company of the continuing suitability of such equipment and interconnection. An inspection by the Company shall in no way constitute a warranty or representation by the Company against future negligence, misuse, faulty repairs, or subsequently developing defects, and the Company assumes no responsibility or liability therefor.

The Net Metering Customer shall provide the Company with notice at least two weeks before the initial energizing and start-up testing of the Net Metering Customer's facilities so that the Company may witness the testing of any equipment and protective systems associated with the interconnection.

If upon connecting to the Company's system a system emergency develops, safety issues arise, or the quality of service to other Net Metering Customers is affected, the Company may then require additional inspections or tests of the Net Metering Customer's protective equipment.

3.13.3 Specifying Protective Equipment

The Company will have the right to specify certain protective devices, including relays and circuit breakers that the Net Metering Customer must install. The Company will specify all relay settings on the intertie. Settings of interconnection protective devices on the Net Metering Customer's system will be specified by the Net Metering Customer, but will be checked, coordinated with, and reviewed by the Company before application and after subsequent modification.

3.13.3.1 Service Interruption Equipment

The Net Metering Customer shall provide an automatic method of disconnecting the renewable energy facility from the distribution delivery system when either of the following conditions occurs. The renewable energy facility shall be automatically disconnected from the Company's distribution delivery system if (1) a sustained voltage deviation in excess of +5.0 % or -10% from nominal voltage persists for more than 30 seconds, or (2) a deviation in excess of +10% or -30% from nominal voltage persists for more than ten cycles. The Net Metering Customer may reconnect no sooner than three minutes after the distribution delivery system voltage and frequency have returned to normal range and the system has been stabilized.

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3.13.3.2 Fault Interrupting Device

The Net Metering Customer shall install a fault-interrupting device between the Company and the renewable energy facility. Circuit breakers or other interrupting devices shall be capable of interrupting maximum available fault current at the PCC. The Company will approve such fault-interrupting device, which is likely to vary in design depending on location, available fault current, and size of the Net Metering Customer's facility.

Since most short circuits on overhead lines are of a temporary nature, it is the Company's normal practice to automatically reclose the substation circuit breaker on overhead lines after an automatic trip. Instantaneous reclosing (10-15 cycles) of circuit breakers and line reclosers may also be used. The Net Metering Customer shall be responsible for automatically disconnecting its facilities from the Company's distribution system prior to the automatic or instantaneous reclosing of a Company's substation circuit breaker or line recloser. The Net Metering Customer's disconnecting device shall not automatically or manually reclose sooner than 30 seconds after the return of the Company's service voltage to normal magnitude and phase sequence following a recloser operation.

For renewable energy facilities using an inverter system, no other fault-interrupting device is required. The inverter interrupts the fault.

#### **Equipment to Block Energizing Dead Circuits** 3.13.3.3

Under no condition will the Net Metering Customer be permitted to energize a non-energized Company distribution circuit. The Net Metering Customer shall install equipment to effectively block the renewable energy facility from energizing a non-energized Company circuit.

#### Control, Protection and Safety Equipment Requirements For Specific 3.13.3.4 **Technologies**

Various technologies require unique control, protection, and safety equipment to be installed. The specifications in this section list those requirements unique to the technologies.

> 3.13.3.4.1 Synchronous Generators

For a Net Metering Customer's synchronous generator, circuit breakers shall be three-phase devices with electronic or electro-mechanical control. The Net Metering Customer is solely responsible for properly synchronizing its generator with the Company's distribution delivery system. The excitation system response ratio shall be 0.5 or greater. The generator's excitation system(s) shall conform, as near as reasonably achievable, to the field voltage versus time criteria specified in American

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National Standards Institute Standard C50.13-1989 in order to permit adequate field forcing during transient conditions.

#### Induction Generators and Inverter Systems

Induction generation may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured on the distribution delivery system side of the PCC is within the allowable visible flicker standard in section 5.1. Otherwise, the Net Metering Customer may be required to install hardware or employ other techniques to bring voltage fluctuations to acceptable levels.

Self-commutated inverters whether of the utility-interactive type or standalone type shall be used in parallel with the distribution delivery system only with synchronizing equipment. Line-commutated inverters do not require synchronizing equipment.

#### 3.14 Susceptibility to Transmission Faults

Faults, single-phasing events or other abnormal operating conditions occurring on the Company's transmission system could affect a Net Metering Customer's facilities connected to the Company's distribution delivery system. It is the Net Metering Customer's responsibility to protect the Net Metering Customer's facilities from these conditions.

#### Synchronizing Requirements

The Net Metering Customer shall be solely responsible for synchronizing and properly connecting and disconnecting its electrical system relative to parallel operation with the Company's system. The Net Metering Customer shall provide an automatic synchronizing scheme to prevent the closing of its circuit breaker when the two electrical systems are out of synchronism.

The Net Metering Customer's renewable energy facility shall be automatically disconnected if its frequency should deviate more than +0.5 Hz or -0.7 Hz from the 60 Hz base. (See section 3.9.10 Frequency.)

The synchronizing system of the Net Metering Customer must allow the Net Metering Customer's facilities to be operated in parallel only when the Company's distribution system is energized from the Company's system at the PCC.

#### **Metering Requirements**

The metering equipment is usually installed on the Net Metering Customer's premises (on Net Metering Customer owned building, pole or structure) as part of the service entrance equipment. Therefore provisions must be made for it in the Net Metering Customer's installation. Based on the applicable rate schedule and the Company's standard practices, the Net Metering Customer will provide the meter socket and the Company will supply the special meter that will measure the Net Metering Customer's energy flow.

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The Net Metering Customer will be required to provide the Company with information regarding the total connected load. The Net Metering Customer may be required to provide and / or install the meter socket, metering transformer enclosure, and adequate attachments or devices for attaching Company's metering facilities to the building. For additional information see the Company's Customer Installation Standards for Electric Service.

#### 3.17 Standard Interconnection Agreement Requirements

A written agreement will be required between the Company and the Net Metering Customer specifying the liability provisions, indemnities, terms of payment of cost to modify distribution delivery system (if not paid in advance), and other items affecting service under this document. This agreement will explain in detail the authority or responsibilities of the parties involved. An interconnection between the Company's distribution delivery system and a Net Metering Customer's renewable energy facility will not be allowed prior to the execution of a written Standard Interconnection Agreement for Net Metering Facilities.

#### References

IEEE Guide for Protective Relaying of Utility-Consumer Interconnection C37.95 (Latest revision)

IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems, 519-1992

IEEE Recommended Practice for Electric Power Distribution for Industrial Plants, 141-1993

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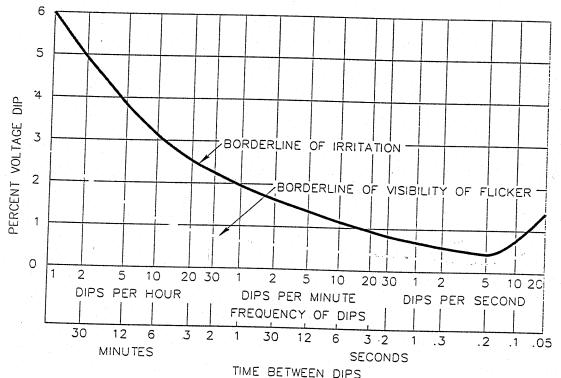
#### 5.0 Attachments

5.1 Flicker Chart

Co-Generation Technical Requirements Compliance Checklist 5.2

5.3 Process Flowchart

#### 5.1 Flicker Chart



Flicker Curve. Source: IEEE Std. 141-1993

#### ARKANSAS PUBLIC SERVICE COMMISSION Original Sheet No. P14.17 Replacing: Sheet No. Entergy Arkansas, Inc. Name of Company Kind of Service: Electric Class of Service: Residential/Commercial Part IV. Policy Schedule No.: 14 Title: Safety and Performance Standards for Net Metering Facilities PSC File Mark Only Co-Generation Technical Requirements Compliance Checklist This checklist is a summary of the requirements that can be found in detail in this document (Section numbers are provided after each requirement.) Two objectives must be met to arrive at compliance by the proposed installation: Safety: The Net Metering Customer's renewable energy facility will be held to the same 1. standard of care, as the Company is required to maintain. In addition, the safety of the general public and the personnel and equipment of the Company shall in no way be reduced or impaired as a result of the interconnection. Customer Impact: The quality, reliability and the availability of service to the Company's other 2. Customers shall not be diminished or impaired as a result of the interconnection. **ENTERGY REQUIREMENT** 1. Supply reactive power. (3.9.6) Description of Proposed Compliance: Comment: Identify power factor. (3.9.7) Description of Proposed Compliance: Comment: 3. Limit voltage surges to range of +5% of nominal voltage. (3.9.8) Description of Proposed Compliance: Comment: Limit voltage sags to -5% of voltage. (3.9.8) Description of Proposed Compliance: Comment:

7. Disconnect intertie within 10 cycles of a service interruption or fault. (3.13.3.1, 3.13.3.2)

5. Limit voltage flicker. (3.9.9)

Comment:

Comment:

Comment:

Description of Proposed Compliance:

Description of Proposed Compliance:

6. Limit harmonic voltage and current. (3.9.11) Description of Proposed Compliance:

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ENTERGY REQUIREMENT (continued) 8. Install fault-interrupting device. (3.13.3.2) Description of Proposed Compliance: Comment: 9. Block generator from energizing dead circuits. (3.13.3.3) Description of Proposed Compliance: Comment: 10. Specify protective devices and settings. (3.13.3.4) Description of Proposed Compliance: Comment:

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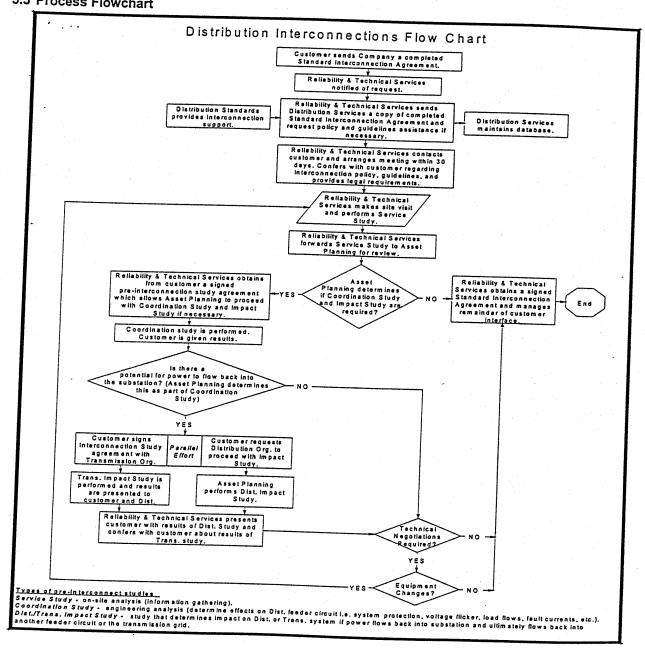
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#### 5.3 Process Flowchart



# ARKANSAS PUBLIC SERVICE COMMISSION ORDER NO. 1 IN APSC DOCKET NO. 02-202-TF ISSUED NOVEMBER 1, 2002 SUSPENDING EAI'S PROPOSED POLICY SCHEDULE NO. 14

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### ARKANSAS PUBLIC SERVICE COMMISSION LED

IN THE MATTER OF ENTERGY ARKANSAS, ) INC.'S PROPOSED POLICY SCHEDULE 14- ) SAFETY AND PERFORMANCE STANDARDS) FOR NET METERING FACILITIES

**DOCKET NO. 02-202-TF** ORDER NO.

#### ORDER

On October 4, 2002, Entergy Arkansas, Inc. (the Company) filed in this docket revised tariffs to add Policy Schedule No. 14, Safety and Performance Standards for Net Metering Facilities. On November 1, 2002, the General Staff of the Arkansas Public Service Commission (Staff) filed the prepared testimony of Mr. Clark D. Cotten, Senior Electrical Engineer, recommending that the proposed tariffs be suspended in order to allow additional time for their review. In support of his recommendation, Mr. Cotten stated that Staff's review and investigation of these tariffs will necessarily exceed the statutory 30-day limit.

Mr. Cotten stated additionally that the Company, through a Company representative, has orally waived the Ark. Code Ann. §23-4-407(a) requirement that a suspension order also establish a specific date for the commencement of a public hearing. Mr. Cotten also recommended that the requested suspension order apply exclusively to the Company's filing identified herein and have no effect on other previously approved tariffs on file with the Secretary of the Commission.

Having considered the matter, it is the finding of the Hearing Officer that Staff's recommendation is well taken.

IT IS, THEREFORE, ORDERED:

- 1. That the proposed tariff revisions filed by the Company in this docket on October 4, 2002, are hereby suspended.
- 2. That said suspension shall apply exclusively to the Company's filing in this docket and shall have no effect on other existing and previously approved tariffs on file with the Secretary of the Commission.

BY ORDER OF THE HEARING OFFICER PURSUANT TO DELEGATION.

This \_\_\_\_/ st\_\_ day of November, 2002.

Hearing Officer

Diana K. Wilson Secretary of the Commission

by the Arkasas as a C Commission has been served or all patters of record this the address of each party as indicated in the official docket file.

Secretary of the Commission

he Arkansas Renewable
Energy Development Act of
2001 permits interconnections
between electric companies and
individual customers who choose to
generate some or all of their own
electricity with renewable resources.

In response to the act, the Arkansas Public Service Commission has adopted rules for utilities and customers to follow in connecting customer-owned generation equipment to the utility grid. Only generation that depends on qualifying renewable energy sources is eligible. These sources might include solar, wind, hydroelectric, geothermal or biomass and are limited to outputs of 25 kilowatts for residential and 100 kilowatts for commercial or general farm use.

The rules set connection standards and metering and billing requirements for these facilities. Interconnecting these facilities with the utility system is called "net metering" because, for billing purposes, it requires the utility to measure both the utility's power used by the customer and the power the customer supplies to the utility to arrive at a "net" amount of generation (in kWh). The meter reading area of the bill will show the amount of customer-generated energy fed back to the utility, the amount of utility-supplied energy

and the difference between the two or the "net" energy. The "energy charge" line on a customer's bill will show the "net" energy billed to the customer. If the customer's facility provides more energy during a billing period than is provided by the utility, the energy charge for that period will be zero.

The intent of this law is consistent with Entergy Arkansas' commitment to facilitating clean power generation, and Entergy Arkansas will gladly work with our customers who choose to pursue alternative generation systems. Each net metering facility will require an interconnection agreement with Entergy Arkansas and must conform to the safety and performance standards approved for these facilities.

For more information, please call 1-800-ENTERGY or, if you are a larger business account, contact your account representative and ask for details on net metering facilities.



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